Exhibit 1

QCO.091A PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Wen-Jian Lin
Appl. No.	:	10/810,660
Filed	:	March 29, 2004
For	:	STRUCTURE OF A MICRO ELECTRO MECHANICAL SYSTEM AND THE MANUFACTURING METHOD THEREOF
Examiner	:	Jarrett J. Stark
Group Art Unit	:	2823

SUPPLEMENTAL AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to consideration of the fully responsive reply filed January 17, 2007, the Applicants respectfully request that the Examiner enter the following supplemental amendments.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A pre-release structure configured to form a micro electro mechanical system upon removal of a sacrificial layer through a structure release etch process, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release structure comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer comprising a light reflective surface facing the first electrode and set directly on the first material layer and approximately in parallel to the first electrode, wherein the first material layer is positioned between the conductor layer and the first electrode;

a sacrificial layer directly contacting the first material layer and positioned between the first material layer and the first electrode, the sacrificial layer selected from the group consisting of dielectric material, metal material, and silicon material; and

a supporter configured to separate the first electrode from the first material layer to form a cavity upon structure release etching;

wherein the conductor layer is susceptible to etching by an etchant suitable to remove the sacrificial layer and wherein the first material layer is adapted to protect the second electrode from etching when the sacrificial layer is removed using the etchant

wherein the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface.

2. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of the sacrificial layer is selected from the group consisting of metal material or silicon material.

3. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, further comprising a second material layer covering the second electrode.

4. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode; and

a supporter configured to separate the first electrode from the first material layer to form a cavity;

a second material layer set on the second electrode; and

a spacer set on the sidewalls of the second electrode and the first material layer;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity.

5. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of the first material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

6. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the material of the second material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

7. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 4, wherein the material of the spacer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

8. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a silicon material that is poly-silicon or amorphous silicon.

9. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a silicon material that is poly-silicon or amorphous silicon.

10. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a silicon material that is poly-silicon or amorphous silicon.

11. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

12. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

13. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

14. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

15. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

16. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

17. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system, comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode; and

a supporter configured to separate the first electrode from the first material layer to form a cavity;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity;

wherein the first material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

18. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system, comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode;

a supporter configured to separate the first electrode from the first material layer to form a cavity; and

a second material layer covering the second electrode;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity;

wherein the second material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

19. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

20. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the thickness of the first material layer is about several angstroms to 2000 angstrom.

21. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the thickness of the first material layer is preferably about 200 angstrom to 1000 angstrom.

22. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the thickness of the second material layer is about several angstroms to 2000 angstrom.

23. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the thickness of the second material layer is preferably about 200 angstrom to 1000 angstrom.

24. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material forming the supporter is selected from the group consisting of one or more of positive photoresists, negative photoresists, acrylic resins, and epoxy resins.

25. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of forming the conductor layer is metal material.

26. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the second electrode is a movable electrode.

27. (CURRENTLY AMENDED) A pre-release structure configured to form a micro electro mechanical system upon removal of a sacrificial layer through a structure release etch process, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release structure comprising:

a first electrode;

a second electrode comprising a light reflective surface facing the first electrode and set approximately in parallel to the first electrode;

a material layer ~~covering~~ directly contacting the light reflective surface~~a side of the second electrode that is facing the first electrode~~;

a sacrificial layer directly contacting the material layer and positioned between the material layer and the first electrode, the sacrificial layer selected from the group consisting of dielectric material, metal material, and silicon material; and

a supporter configured to separate the first electrode from the material layer to form a cavity upon structure release etching;

wherein the second electrode is susceptible to etching by an etchant suitable to remove the sacrificial layer and wherein the material layer is adapted to protect the second electrode from etching when the sacrificial layer is removed using the etchant

wherein the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface.

28. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material of the sacrificial layer is selected from the group consisting of metal material and silicon material.

29. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material of the material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

30. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a silicon material that is poly-silicon or amorphous silicon.

31. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

32. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

33. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

34. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the thickness of the material layer is about several angstroms to 2000 angstrom.

35. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the thickness of the material layer is preferably about 200 angstrom to 1000 angstrom.

36. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material forming the supporter is selected from the group consisting of one or more of positive photoresists, negative photoresists, acrylic resins, and epoxy resins.

37. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the second electrode is a movable electrode.

38-73. (CANCELLED)

74. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the sacrificial layer is amorphous silicon.

75. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the sacrificial layer is amorphous silicon.

REMARKS

Claims 1 and 27 have been amended to recite that the protective material layer directly contacts a light reflective surface on the second electrode and directly contacts the sacrificial layer. Claims 1 and 27 have also been amended to recite that the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface. Support for these amendments may be found in the specification, for example, on pages 2-3 and Figures 4B, 5C, and 6C. The amendments to the claims have been presented based on the entrance of the amendments filed with the January 17, 2007 response. No new matter has been introduced.

No fee is believed due; however, please charge any fees, including any fees for extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 2-9-07

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020907

Exhibit 2

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,660	03/29/2004	Wen-Jian Lin	QCO.091A/061121	1130

59747 7590 03/22/2007

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EXAMINER	
STARK, JARRETT J	
ART UNIT	PAPER NUMBER
2823	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,660	LIN, WEN-JIAN	
	Examiner	Art Unit	
	Jarrett J. Stark	2823	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4,7,10,13 and 19* is/are allowed.

6)☒ Claim(s) *1-3, 5-6, 11-12, 14-15, 17-18, 20-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 1/4/07
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 1/17/2007 and 2/9/2007 have been fully considered but they are not persuasive.

The Applicants submit that the newly added limitation distinguish the claimed invention from the prior art for the following reasons:

"wherein the conductor layer is susceptible to etching by an enchants suitable to remove the sacrificial layer" and the material property of "adapted to protect the second electrode from etching by an enchant suitable to remove the sacrificial layer"

The Examiner respectfully traverses this argument. The claims are directed to a structure. Method or process limitations are not read into a device claim.

Product-By-Process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Also a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

"Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Allowable Subject Matter

Claims 4, 7,10, 13, 16, and 19 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason the indication of allowable subject matter is the limitation of a spacer on the sidewall of the seconded electrode. The prior art does not teach the formation of a spacer on the sidewall of the second electrode. This limitation in combination with all other limitations included in the independent claim, make a clear distinction from the searched and cited prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 5, 6, 11, 12, 14, 15, 18, 29, 24 - 28, 31, 32, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Miles (US 5,835,255).

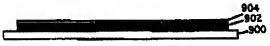


FIG. 27A

FIG. 27B

FIG. 27C

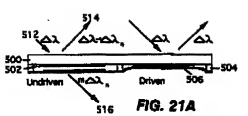
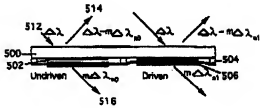


FIG. 21A



Regarding claims 1, 17 and 27, Miles discloses a pre-release structure configured to form a micro electro mechanical system, upon removal of a sacrificial layer through a structure release etch process, said micro electo mechanical system suitable to use on an optical interference display cell, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release:

a first electrode; (Miles , Fig. 21A - [502], Fig. 27)

a second electrode; (Miles, Fig. 21A - [506], & Fig. 27)

a first material layer; and (Miles, Fig. 2A – see response to argument above)

a conductor layer comprising a light reflective surface facing the first electrode and set directly on the first material layer and approximately in parallel to the first electrode wherein the first material layer is positioned between the conductor layer and the first electrode; (Miles, Fig. 21A - [502] &

[506] Fig. 21 shows the membrane support layer is between a first and second electrode (502 and 506))

a sacrificial layer directly contacting the first material layer and positioned between the first material layer and the first electrode (Miles, Fig. 25M-N), the sacrificial layer consisting of a dielectric material (layer 712 of figure 25M); and

a supporter configured to separate the first electrode and the first material layer to form a cavity upon structure release etching; (Miles, Fig. 21A - [504])

(Miles, Col. 20 lines 55-57 → 900 is symbolizes both the support membrane & conductor/electrode [506] and the substrate [500] & conductor/electrode shown in Fig. 21)

wherein the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface (Figure 21).

Regarding claim 2, 24, 25, 28, 36, the claims cited are given no patentable weight. Product-By-Process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps.

"Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was

made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Also regarding claim 24, 36, Miles teaches using a photoresist. Using a photoresist is standard practice in the art.

Also regarding claim 25, Miles teaches using ITO for the conducting layers. (Miles, col. 21 line 13 → ITO)

Regarding claim 3, Miles discloses the pre-release structure of claim 1, further comprising a second material layer covering the second electrode. (Miles, Fig. 27A - [904])

Regarding claim 5,11, 29, 31, Miles discloses the pre-release structure of claim 1, wherein the material of the first material layer is selected from the group consisting of **silicon material**, **dielectric material**, transparent conductor material, cromolecule polymer, metal oxide and any arbitrary combination thereof. (Miles, col. 19 line 58 → silicon nitride)

Regarding claim 6,12, & 18, Miles discloses the pre-release structure of claim 3, wherein the material of the second material layer is selected from the group consisting of silicon material, **dielectric material**, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof. (Miles, Fig. 27A - [904] → insulator)

Regarding claim 14, Miles discloses the pre-release structure of claim 5, wherein the transparent conductor material is indium tin oxide, indium zinc oxide, or indium oxide. (Miles, col. 21 line 13 → ITO)

Regarding claim 15, 32, Miles discloses the pre-release structure of claim 6, wherein the transparent conductor material is Indium tin oxide, indium zinc oxide, or indium oxide. (Miles, col. 21 line 13 → ITO)

Regarding claim 26 and 37, Miles discloses the structure of a micro electro mechanical system of claim 1 & 27, wherein the second electrode is a movable electrode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8, 9, 30, 34, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Miles (US 5,835,3255) in view of Gotoh et al. (US 5,824,608).

Regarding claim 8,9, 20-23, 30, 34, 35, Miles discloses the pre-release structure of claim 5,

Miles does not expressly disclose wherein the silicon material is poly-silicon or amorphous silicon.

Gotoh discloses wherein the silicon material is poly-silicon.

The References are analogous art because they are from the same field of endeavor, which is making a movable electrode.

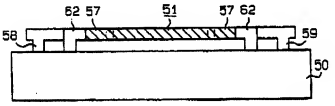
At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use polysilicon as a support membrane.

Therefore, it would have been obvious to combine the two references to obtain the invention as specified.

> *A movable portion 51 of a beam structure is disposed above a silicon substrate 50 with a prescribed gap therebetween. The movable portion 51 of a polysilicon thin film comprises beam*

portions 52, 53, 54 and 55, weight portion 56 and movable electrode portions 57. (Gotoh, Col. 1, lines 32-37)

FIG. 41 PRIOR ART



Regarding claims 20 – 23, 34, 35, It would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value for the layer thicknesses through routine experimentation and optimization to obtain optimal or desired device performance because the layer thicknesses is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05

Given the teaching of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. See In re Aller, Lacey and Hall (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation."

Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 f.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. Ex parte Ishizaka, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jarrett J. Stark whose telephone number is (571) 272-6005. The examiner can normally be reached on Monday - Thursday 7:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJS
March 9, 2007

MICHELLE ESTRADA
PRIMARY EXAMINER

Exhibit 3

QCO.091A/061121 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Wen-Jian Lin
Appl. No.	:	10/810,660
Filed	:	Marych 29, 2004
For	:	STRUCTURE OF A MICRO ELECTRO MECHANICAL SYSTEM AND THE MANUFACTURING METHOD THEREOF
Examiner	:	Jarrett J. Stark
Group Art Unit	:	2823

CERTIFICATE OF EFS WEB TRANSMISSION

I hereby certify that this correspondence, and any other attachment noted on the automated Acknowledgement Receipt, is being transmitted from within the Pacific Time zone to the Commissioner for Patents via the EFS Web server on:

May 17, 2007
(Date)

Ryan E. Melnick, Reg. No. 58,621

RESPONSE TO FINAL OFFICE ACTION

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action mailed March 22, 2007, please find the enclosed remarks.

A Listing of the Claims begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

LISTING OF THE CLAIMS

1. (PREVIOUSLY PRESENTED) A pre-release structure configured to form a micro electro mechanical system upon removal of a sacrificial layer through a structure release etch process, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release structure comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer comprising a light reflective surface facing the first electrode and set directly on the first material layer and approximately in parallel to the first electrode, wherein the first material layer is positioned between the conductor layer and the first electrode;

a sacrificial layer positioned between the first material layer and the first electrode, the sacrificial layer selected from the group consisting of dielectric material, metal material, and silicon material; and

a supporter configured to separate the first electrode from the first material layer to form a cavity upon structure release etching;

wherein the conductor layer is susceptible to etching by an etchant suitable to remove the sacrificial layer and wherein the first material layer is adapted to protect the second electrode from etching when the sacrificial layer is removed using the etchant

wherein the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface.

2. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of the sacrificial layer is selected from the group consisting of metal material or silicon material.

3. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, further comprising a second material layer covering the second electrode.

4. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode; and

a supporter configured to separate the first electrode from the first material layer to form a cavity;

a second material layer set on the second electrode; and

a spacer set on the sidewalls of the second electrode and the first material layer;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity.

5. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of the first material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

6. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the material of the second material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

7. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 4, wherein the material of the spacer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

8. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a silicon material that is poly-silicon or amorphous silicon.

9. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a silicon material that is poly-silicon or amorphous silicon.

10. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a silicon material that is poly-silicon or amorphous silicon.

11. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

12. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

13. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

14. (PREVIOUSLY PRESENTED) The pre-release structure of claim 5, wherein the first material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

15. (PREVIOUSLY PRESENTED) The pre-release structure of claim 6, wherein the second material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

16. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

17. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system, comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode; and

a supporter configured to separate the first electrode from the first material layer to form a cavity;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity;

wherein the first material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

18. (PREVIOUSLY PRESENTED) A structure of a micro electro mechanical system, comprising:

a first electrode;

a second electrode comprising:

a first material layer; and

a conductor layer set on the first material layer and approximately in parallel to the first electrode;

a supporter configured to separate the first electrode from the first material layer to form a cavity; and

a second material layer covering the second electrode;

wherein the first material layer is adapted to protect the second electrode from etching when a sacrificial layer between the first electrode and the first material layer is removed through a structure release etch process to form the cavity;

wherein the second material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

19. (PREVIOUSLY PRESENTED) The structure of a micro electro mechanical system of claim 7, wherein the material of the spacer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

20. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the thickness of the first material layer is about several angstroms to 2000 angstrom.

21. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the thickness of the first material layer is preferably about 200 angstrom to 1000 angstrom.

22. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the thickness of the second material layer is about several angstroms to 2000 angstrom.

23. (PREVIOUSLY PRESENTED) The pre-release structure of claim 3, wherein the thickness of the second material layer is preferably about 200 angstrom to 1000 angstrom.

24. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material forming the supporter is selected from the group consisting of one or more of positive photoresists, negative photoresists, acrylic resins, and epoxy resins.

25. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the material of forming the conductor layer is metal material.

26. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the second electrode is a movable electrode.

27. (PREVIOUSLY PRESENTED) A pre-release structure configured to form a micro electro mechanical system upon removal of a sacrificial layer through a structure release etch process, said micro electro mechanical system suitable to use on an optical interference display cell, the pre-release structure comprising:

a first electrode;

a second electrode comprising a light reflective surface facing the first electrode and set approximately in parallel to the first electrode;

a material layer directly contacting the light reflective surface;

a sacrificial layer positioned between the material layer and the first electrode, the sacrificial layer selected from the group consisting of dielectric material, metal material, and silicon material; and

a supporter configured to separate the first electrode from the material layer to form a cavity upon structure release etching;

wherein the second electrode is susceptible to etching by an etchant suitable to remove the sacrificial layer and wherein the material layer is adapted to protect the second electrode from etching when the sacrificial layer is removed using the etchant

wherein the optical interference display cell formed after removal of the sacrificial layer is configured to interferometrically reflect light entering the cavity and contacting the light reflective surface.

28. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material of the sacrificial layer is selected from the group consisting of metal material and silicon material.

29. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material of the material layer is selected from the group consisting of silicon material, dielectric material, transparent conductor material, macromolecule polymer, metal oxide and any arbitrary combination thereof.

30. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a silicon material that is poly-silicon or amorphous silicon.

31. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a dielectric material that is silicon oxide, silicon nitride, or silicon oxynitride.

32. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a transparent conductor material that is indium tin oxide, indium zinc oxide, or indium oxide.

33. (PREVIOUSLY PRESENTED) The pre-release structure of claim 29, wherein the material of the material layer is a macromolecule polymer that is paraffin or a macromolecule material that can be coated by vapor.

34. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the thickness of the material layer is about several angstroms to 2000 angstrom.

35. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the thickness of the material layer is preferably about 200 angstrom to 1000 angstrom.

36. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the material forming the supporter is selected from the group consisting of one or more of positive photoresists, negative photoresists, acrylic resins, and epoxy resins.

37. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the second electrode is a movable electrode.

38-73. (CANCELLED)

74. (PREVIOUSLY PRESENTED) The pre-release structure of claim 1, wherein the sacrificial layer is amorphous silicon.

75. (PREVIOUSLY PRESENTED) The pre-release structure of claim 27, wherein the sacrificial layer is amorphous silicon.

REMARKS

No amendments are made herein. Claims 1-37, 74, and 75 are pending. Applicants note with appreciation that Claims 4, 7, 10, 13, 16, and 19 are allowed. Claim 33, 74, and 75 were not addressed in the Office Action.

The Examiner maintained rejections of Claims 1-3, 5-6, 11-12, 14-15, 17-18, 29, 24-28, 31-32, and 36-37 under 35 U.S.C. § 102(b) as being anticipated by Miles (U.S. Patent No. 5,835,255). The Examiner also maintained rejections of Claims 8, 9, 20-23, 30, and 34-35 under 35 U.S.C. § 103(a) as being obvious over Miles in view of Gotoh et al. (U.S. Patent No. 5,824,608). The Applicants respectfully traverse.

With respect to Claims 1-3, 5-6, 8-9, 11-12, 14-15, 20-37, and 74-75, the Examiner gave no patentable weight to the limitations "wherein the conductor layer is susceptible to etching by an etchant suitable to remove the sacrificial layer" and "wherein the first material layer is adapted to protect the second electrode from etching when the sacrificial layer is removed using the etchant." The Examiner argued that method or process limitations are not read into device claims and that product-by-process claims are not limited to the manipulations of the recited steps.

The Applicants respectfully submit that the rejected claims are not product-by-process claims. Nor is the limitation above a method or process limitation or an intended use. Rather, the claim clearly limits material (*i.e.*, structural) properties of the conductive layer and the first material layer relative to the sacrificial layer. Namely, all three materials must be such that an etchant exists which will (1) etch the sacrificial layer; (2) etch the conductor layer; and (3) not etch the material layer. No method/process steps are recited; rather the limitation merely specifies what would happen to the various materials in the face of an etchant that etches the sacrificial layer. The skilled artisan will appreciate that these limitations would be met by the correct materials (e.g., Applicants' preferred embodiments) regardless of whether any etching steps are actually conducted.

Thus, the language ignored by the examiner positively defines chemical properties of the conductor layer and first material layer. There is not positive recitation of process steps for obtaining a product and hence are not product-by-process limitations. The limitations do include

functional language, but there is nothing wrong with defining structural limitations by way of functional language, and the Examiner is not at liberty to ignore such limitations.

Defining structural features by their properties or functions they serve is appropriate and should be accorded patentable weight. *See E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1435 (Fed. Cir. 1988) (stating that "[o]n occasion ... structure alone may be inadequate to define the invention, making it appropriate to define the invention in part by property limitations."). In *du Pont*, the Federal Circuit held that claiming a polymer based on its "Elmendorf tear strength" rather than its specific structure is appropriate and that this property limitation needs to be considered when determining the claim's validity over prior art. *See id.* at 1434-1436. *See also In re Echerd*, 471 F.2d 632, 635 (CCPA 1973) (holding that in a structure claim "[t]here is nothing intrinsically wrong in defining something by what it does rather than by what it is" and that "these potentially distinguishing features cannot simply be ignored."); *In re Venezia*, 530 F.2d 956, 959 (CCPA 1976) (stating that "[w]e see nothing wrong in defining the structures of components ... in terms of ... the attributes they must possess."). Similarly, the language used by the Applicants further define the conductor layer and first material layer structures based on the properties of their respective materials. The Applicants respectfully submit that the Examiner must give all limitations in the claims patentable weight, whether they define structure explicitly or by property, and that none of the art cited by the Examiner discloses all of these limitations.

With respect to Claims 17 and 18, the Examiner has not identified any prior art disclosing the limitation of a material layer comprising macromolecule materials such as paraffin. Accordingly, the Applicants respectfully submit that Claims 17 and 18 are allowable. The same arguments apply to Claim 33, which was not addressed by the Examiner

With respect to Claim 28, the Examiner has not identified any prior art disclosing that the material of the sacrificial layer is a metal or silicon. For this additional reason, the Applicants respectfully submit that Claim 28 is allowable.

As noted above, the Examiner did not address Claims 74 and 75 (which depend from Claims 1 and 27, respectively). However, the Applicants submit that none of the cited art discloses that the material of the sacrificial layer is amorphous silicon. Accordingly, for this additional reason the Applicants respectfully submit that Claims 74 and 75 are allowable.

No fees are believed due; however, please charge any fees, including any fees for extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5-17-07

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